



4. The plant employs approximately 150 to 200 workers, of which about 30 percent are women. No administrative personnel are employed. From 30 to 40 percent of the workers, all of them from Slovakia, live and take their meals in a factory-owned boarding house. The foundry works three shifts a day: from 6:00 a.m. to 2:00 p.m.; from 2:00 to 10:00 p.m.; and from 10:00 p.m. to 6:00 a.m. Absenteeism is highest on Saturday afternoons, Sundays and Mondays. Fluctuation in the number of personnel is great because many workers accept jobs in recently constructed factories in Slovakia. A number of railroad employees work in the foundry in their spare time.
5. Equipment  
The following kinds of metal are processed at the plant:
  - a. copper, mainly blister copper; 3,000 to 7,000 kilograms per shift
  - b. refined copper, 99.1 to 99.7 percent Cu
  - c. copper in bars, 98.5 to 99 percent Cu
  - d. various kinds of brass, 58 to 67 percent Cu
  - e. bronze, nine and ten percent Sn
  - f. red copper (red metal), 85 percent Cu, 9 percent Sn, 6 percent Zn; about 5,000 kilograms per shift
  - g. copper anodes for electrolysis, 93 to 98 percent Cu
  - h. zinc, approximately 500 kilograms per shift
  - i. sulfate of nickel,  $\text{NiSO}_4 \cdot 5\text{H}_2\text{O}$
6. The plant is divided into three main sections: One is for the production of copper, the second smelts zinc, and the third produces sulfate of nickel.
7. The copper producing section of the plant has the following equipment:
  - a. 2 "sachetni pec" blast furnaces, 6 x 1.5 meters and 9 x 1.5 meters; one is water cooled and has eight air vents and a vertical lift. The other is currently out of operation. They are serviced by four people.
  - b. 2 "rafinacni pec" five-ton refining furnaces, serviced by two men.
  - c. 2 "kelimkova pec" concible furnaces, with a capacity of 2,100 kilograms per shift, serviced by two men. There is a crane for the melting pots.
  - d. 1 "dmychadlo" (a type of bellows) for the blast furnace and 2 "dmychadlo" for the refining furnaces. Serviced by one man.
  - e. 1 "konvertor" (ore dust mixer), with a capacity of two metric tons; it is conical and can be tilted forward.
8. The following equipment is located in the section which produces sulfate of nickel:
  - a. equipment for electrolysis
  - b. 6 wooden vats lined with lead, about 3 x 3 x 1.5 meters
  - c. 1 reaction tower (for chemical production of Zn)
  - d. 3 centrifugal pumps
  - e. 1 "kalosis" filter for purifying liquids
  - f. 1 grinder for sulfate of nickel
  - g. 2 steam vats, build between 1910 and 1920
9. The zinc smelting section is equipped with one iron smelting pot with a capacity of about 500 kilograms of zinc. The plant garage has one 1950 model 3.5-ton Praga RN truck, one 5-ton Tatra diesel truck about 10 years old, and one 40 HP Skoda-Rapid passenger car about ten years old. The plant forge is equipped with two anvils and a medium-sized forge with an electric ventilator. The plant also has one chamotte grinder.
10. The plant repair shop is equipped with the following machinery:
  - a. 2 vertical drills,  $\varnothing$  50 mm. and  $\varnothing$  15 mm.
  - b. 1 turning lathe about 400 x 1,500 mm., with transmission, built around 1925
  - c. 2 autogenous welding torches
  - d. 2 electric welding machines (Widerstandsschweisser)

Production Methods

11. In order to produce 3,000 to 4,000 kilograms of black copper (blister copper), 9,600 to 16,000 kilograms of slag (struska) with a copper content of 25 to 50 percent is placed in a blast furnace with about 1,000 kilograms of scrap metal containing copper, calcium, quartz ( $SiO_2$ ) and the desired amount of coke. Time needed for smelting is 25 to 35 hours. The main disadvantage of the pyrometallurgic method is that raw materials are not agglomerated and smelting is therefore difficult. In spite of this drawback, however, black copper containing sulphur (maximum of 1.5 percent) is produced. Refined copper is derived from black copper by processing it in a refining furnace.
12. Black copper, refined copper, copper in bars, brass, red metal and copper anodes are all molded into bars weighing ten kilograms each. Each bar is marked with a "U" (for Union). The contents of the smelting pots (400 kilograms) is molded into six bars each (sic).
13. Zinc is obtained by smelting scrap zinc in a smelting pot; the process is very primitive. The zinc is intended, however, only for use in the factory production of other non-ferrous metals.
14. The principal raw material used in the production of sulfate of nickel (siran nikelnaty -  $NiSO_4 \cdot 5H_2O$ ) is nickel mat (niklový kaminek - Nickelmatte) which has been stored in the plant since World War II. The nickel mat is melted in a refining furnace and used for the production of anodes. The anodes are then dissolved by electrolysis, and during this process the solution becomes acid and contains a lot of superfluous "Iron H". It is next neutralized with chalk or lime. The neutralized liquid is sprayed into a vertical machine; from the opposite side of the machine sulfuretted hydrogen "sirovodík" ( $H_2S$ ) is added, and zinc sulfide ( $ZnS$ ) is formed as a precipitate. Upon removal of the Zn the liquid is filtered and pumped into wooden vats. Potassium permanganate (manganistan draselny -  $KMnO_4$ ) is added, and the liquid is evaporated, yielding the crystallized form of sulfate of nickel. The sulfate of nickel is then pulverized and poured into vats.

Raw Materials, Suppliers and Customers

15. Raw materials are transported to the edge of the factory grounds on a rail siding shared by the foundry and the Pilsen Brewery. From here the material is brought by narrow-gauge railway to the various sections of the foundry. Coke is transported to the plant from the producer, Coke Plant Karolina, Ostrava I, in factory-owned trucks.
16. The raw materials (slag of nonferrous metals) are supplied to the foundry by various plants of the Foundry for Nonferrous Metals (Slevarny Barevnych Kovu) from the Raw Materials Collection Depots (Sberne Suroviny). From one to four freight carloads are delivered to the factory each day. The supply of raw materials on hand will last about two years.
17. In June 1951 Kovohute received from Chemapol in Prague, Trida Politických Vězu, a delivery of sulfate of nickel samples which contained four to five percent phosphorus. The phosphorus was to be extracted from the samples, but as of September 1951 the experiment was still unsuccessful, because Kovohute received only a small quantity of sulfate of nickel. If the experiments had been successful, Kovohute was to receive a large shipment of sulfate of nickel from Chemapol. The sulfate of nickel would probably be of foreign provenience.
18. The following are the customers for products produced at the foundry:
 

Refined copper - Vitkovické Železárny, in Ostrava-Vitkovice;  
 Hutní Prodejna, in Ostrava, Olomouc, Prague, Brno,  
 and Povážská Bystrica  
 Copper in bars - Kovohute Václav

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Brass - MS 67 (67 percent copper) - all member plants of Hutni Prodejna  
Screw factory in Kyjava  
Modrice near Brno

Bronze (9 percent Sn) - Hutni Prodejna

Bronze (10 percent Sn) - Hutni Prodejna

Red metal - CSD Vrutky

Hutni Prodejna

Vitkovice Zelezarny and Modrice demand high quality and short-notice delivery (up to 14 days).

19. The sulfate of nickel is delivered to an unknown address in Prague, probably to Vrsovice station. It is shipped in barrels [redacted] the final consignee is a margarine plant.

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#### Security Measures

20. The parts of the perimeter of the plant grounds which are not bounded by buildings are enclosed by a wall three to 3.5 meters high. Barbed wire is strung along the top of the wall, and during the night the wall is illuminated from the foundry courtyard. Plant police patrol along the inside of the wall, during the day one man, during the night two men with pistols. When not on duty plant police stay in a guard room near the main entrance from Opavska Trida. (Fnu) Ozana (first name thought to be Jaroslav) was formerly in charge of plant security, but he was transferred to Kovohute in Mokrad near Dolny Kubin in 1951.
21. Fire prevention measures are limited to a few Minimax fire extinguishers. Air raid prevention measures are treated very negligently; only a few boxes of sand and other primitive equipment is on hand.

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